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(71) Applicant:
Kokusai Denshin Denwa Kabushiki Kaisha
Tokyo 163-03 (JP)

(72) Inventors:
- **Akiba, Shigeyuki,**
  c/o Kokusai Denshin Denwa K.K.
  Tokyo 163-03 (JP)
- **Yamamoto, Shu,**
  c/o Kokusai Denshin Denwa K.K.
  Tokyo 163-03 (JP)
- **Suzuki, Masatoshi,**
  c/o Kokusai Denshin Denwa K.K.
  Tokyo 163-03 (JP)
- **Edagawa, Noboru,**
  c/o Kokusai Denshin Denwa K.K.
  Tokyo 163-03 (JP)
- **Taga, Hidenori,**
  c/o Kokusai Denshin Denwa K.K.
  Tokyo 163-03 (JP)

(74) Representative:
Schaumburg, Thoenes, Thurn
Patentanwälte
Postfach 86 07 48
81634 München (DE)

(54) Optical transmission system and optical repeater

(57) An optical transmission system comprises transmission optical fibers 14 connected between an optical transmission terminal 10 and an optical receiving terminal 12 via optical amplifying repeaters 16, and equalizing fiber 18 each connected in each equalizing interval. The equalizing fiber 18 is typically located at the terminal end of each equalizing interval. Each transmission optical fiber 14 is a dispersion-shifted fiber whose wavelength dispersion is substantially zero in a specific band, for example, 1.5 μm. The optical amplifying repeaters 16 include an optical amplifier, and a dispersion compensating optical element having wavelength dispersion characteristics that exhibit an inclination opposite from that of wavelength characteristics of wavelength dispersion of the transmission optical fiber 14 (more specifically, a minus inclination with respect to the wavelength). The dispersion compensating optical element compensates offset values of cumulative wavelength dispersion among different wavelengths. The dispersion compensating optical element can be made by a fiber grating technology.

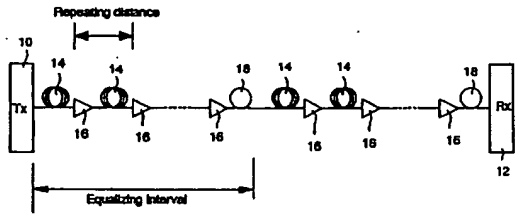

Fig.1

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EUROPEAN SEARCH REPORT

Application Number
EP 96 11 7627

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	TKACH R W ET AL: "TRANSMISSION OF EIGHT 20-GB/S CHANNELS OVER 232 KM OF CONVENTIONAL SINGLE-MODE FIBER" IEEE PHOTONICS TECHNOLOGY LETTERS, vol. 7, no. 11, 1 November 1995, pages 1369-1371, XP000537980 * abstract * * page 1369, right-hand column *	1,2,4-7, 9,11-13, 15,16	H04B10/18 H04B10/17
Y	* figures 1,5 *	3,14	
Y	HILL K O ET AL: "CHIRPED IN-FIBER BRAGG GRATINGS FOR COMPENSATION OF OPTICAL-FIBER DISPERSION" OPTICS LETTERS, vol. 19, no. 17, 1 September 1994, pages 1314-1316, XP000461387 * page 1315, right-hand column, line 13 - page 1316, left-hand column, line 3 * * figure 5 *	3,14	
X	EP 0 684 709 A (AT & T CORP) * abstract * * column 3, line 13 - line 34 * * column 4, line 19 - line 22 * * column 5, line 6 - line 23 * * figures 1,2 *	1,2,4-6	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H04B
A	EP 0 559 356 A (NORTHERN TELECOM LTD) * abstract * * column 1, line 37 - line 55 * * figure 1 *	1-17	
A	US 5 224 183 A (DUGAN JOHN M) * abstract * * column 4, line 30 - line 66 * * figure 2 *	8,10,17	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	20 February 1998	Ribbe, A

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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